

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/14920

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : Please See Extra Sheet.

US CL : 435/4, 6, 91.2, 320.1; 530/300, 350, 387.1, 388.26; 536/23.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/4, 6, 91.2, 320.1; 530/300, 350, 387.1, 388.26; 536/23.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P ----- Y,P	Nature, Volume 368, issued 21 April 1994, T. Nobori et al, "Deletions of the cyclin-dependent kinase-4 inhibitor gene in multiple human cancers", pages 753-756, especially pages 753-754.	1, 3, 5, 7-9 ----- 2, 4, 6, 10-12
Y	US, A, 4,683,195 (MULLIS ET AL) 28 July 1987, whole document.	2, 6
Y	Biochimica et Biophysica Acta, Volume 675, issued 1981, N. Kamatani et al, "Dependence of adenine production upon polyamine synthesis in culture human lymphoblasts", pages 344-350, especially page 346.	4, 10, 15

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

Special categories of cited documents:		*T*	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A	document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E	earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*&*	document member of the same patent family
O	document referring to an oral disclosure, use, exhibition or other means		
P	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

21 APRIL 1995

Date of mailing of the international search report

28 APR 1995

Name and mailing address of the ISA/US
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/14920

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Agric. Biol. Chem., Volume 52, No. 4, issued 1988, T. Shibui et al, "A new hybrid promoter and its expression vector in <i>Escherichia coli</i> ", pages 983-988, whole document.	9-12
Y	Cancer Research, Volume 53, issued 01 March 1993, T. Nobori et al, "Methylthioadenosine phosphorylase deficiency in human non-small cell lung cancers", pages 1098-1101, especially page 1098-1099.	4, 13, 14, 16, 17
Y	Nature, Volume 256, issued 07 August 1975, G. Kohler et al, "Continuous cultures of fused cells secreting antibody of predefined specificity", pages 495-497, whole document.	13, 14, 16, 17
A	Zappia et al., "Progress in Polyamine Research", published 1988 by Plenum Press (New York), pages 179-238, whole document.	1-17

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

A. CLASSIFICATION OF SUBJECT MATTER:

IPC (6):

C12Q 1/00, 1/68; C12P 19/34; C12N 15/00; A61K 35/14, 38/00; C07K 1/00, 17/00; A61K 35/14; C07H 17/00

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

APS, DIALOG, STN/CAS, Genbank, EMBL

search terms: methylthioadenosine, phosphorylase, MTAP, PCR, (SEQ ID NOs 1-5)

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

- I. Claims 1-6, drawn to a method of detection of MTase presence or activity.
- II. Claims 7-9, and 11 drawn to a product, the MTase gene and vectors containing that gene.
- III. Claims 10, and 12-17 drawn to a product, the MTase protein, fragments thereof, and antibodies raised against the MTase protein or fragments thereof.

Groups I-III lack unity of invention according to PCT Rule 13.1 because they are separate and distinct inventions which are not linked by the same or corresponding special technical feature according to PCT Rule 13.2. Group I is drawn to methods of detection of MTase. Group II is drawn to the MTase gene and vectors containing that gene. Group I and Group II do not share common special technical features, nor are they technically linked as the product of Group II can be used for processes other than those contained in Group I. Group III is drawn to the MTase protein, fragments thereof, and antibodies raised against the MTase protein or fragments thereof. Group I and Group III are distinct because the product of Group III would not be utilized in the method of detection of Group I. Group II and Group III are drawn to separate and distinct products which are not linked by a common special technical feature. Accordingly, the claims are not so linked by a special technical feature within the meaning of PCT Rule 13.2 so as to form a single inventive concept.